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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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ALLEN, DYER, DOPPELT, MILBRATH & GILCHRIST P.A. 1401 CITRUS CENTER 255 SOUTH ORANGE AVENUE P.O. BOX 3791 ORLANDO, FL 32802-3791				
			EXAMINER AZEMAR, GUERSSY	
			ART UNIT 2613	PAPER NUMBER

DATE MAILED: 12/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/700,948

Applicant(s)

HOGAN ET AL.

Examiner

Guerssy Azemar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Govan Date et al. (2003006872) in view of Dormer et al. (20020130249) and Bull et al. (5,029,306).

(1) With respect to claim 1:

Govan Date et al. teaches a transmitter optical sub-assembly for mounting in a host device comprising:

a housing (1 in figure 1).

a window in a side of the housing forming a hermetic seal therewith for passing the optical signal therethrough (block 1 in figure 1 teaches a window where the bore is connected to the optical package);

a bore mounted outside of the housing for receiving an end of the optical fiber (figure 1 teaches the bore extended outside the optical assembly);

an electronic circuit, mounted in the housing, including circuitry for transmitting electronic signals to the laser diode (4 in figure 1 shows the connecting points to the electronic circuitry, and further disclosure of the same circuit in figure 2 shows block 3 the electronic circuitry);

a multi-layer ceramic feedthrough for transmitting electronic signals to the electronic circuit from the host device (20 and 21 in figure 4, figure 4 is a closer view at the same figure 1); and

an electrical connector extending from the ceramic feedthrough electrically connecting the host device with the ceramic feedthrough (7 in figure 2, same circuit as figure 1); wherein the electrical connector comprises leads (4 in figure 1, the reference teaches leads, however does not detail the types of leads are connecting the optical package to the electronic circuit. It should be noted that some elements are fundamentally necessary for the operation of the two circuits):

wherein the circuitry includes an impedance matching resistor electrically connected to at least one of the two leads for transmitting RF signals to the laser diode (matching resistors are supported in the reference as necessary in the performance of the circuit, page 1, paragraph 0013);

However, Govan Date et al. does not teach a laser diode for generating an optical signal;

a monitor diode for monitoring output from the laser diode

a lens system for focusing the optical signal onto an optical fiber, which transmits the optical signal from the TOSA.

wherein two of the leads are for transmitting RF signals to the laser diode;

wherein two of the leads are for transmitting DC bias signals to the laser diode;

wherein two of the leads are for transmitting signals to and from the monitor diode;

wherein the circuitry includes an inductive choke component electrically connected to at least one of the two leads for transmitting DC bias signals to the laser diode.

Dormer teaches a laser diode for generating an optical signal (101 in figure 1);
a monitor diode for monitoring output from the laser diode (103 in figure 1);
a lens system for focusing the optical signal onto an optical fiber, which transmits the optical signal from the TOSA (102 in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the optical subassembly as taught by Dormer in the TOSA taught by Govan Date et al. because it provides a reduction in cost due to the elimination of extra parts, the accurate location of parts on the assembly.

Govan Date et al. and Dormer don't teach the electrical connector comprises six leads:

wherein two of the leads are for transmitting RF signals to the laser diode;
wherein two of leads are for transmitting DC bias signals to the laser diode;
wherein two of the lead are for transmitting signals to and from the monitor diode;
wherein the circuitry includes an inductive choke component electrically connected to at least one of the two leads for transmitting DC bias signals to the laser diode.

Bull et al. teaches transmitting RF signals to the laser diode (48 in figure 3), transmitting DC bias signals to the laser diode (column 6, lines 54, 55), and includes inductive choke component electrically connected for transmitting DC bias signals to

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the laser diode (column 6, lines 58-60, the choke is used in order to prevent interference of the bias signal with the RF signal).

Therefore it would have been obvious to one with ordinary skill in the art at the time of the invention of use leads to carry signals to and from the components taught by Bull et al. in the TOSA taught by Govan Date et al. not only because of their necessity, but also because it would improve the overall performance of the system due to their simplicity.

Govan Date et al. and Dormer and Bull et al. don't teach the connector wherein two of the leads are for transmitting signals to and from the monitor diode.

However, Govan Date et al. teaches the use of leads (4 in figure 1), and Dormer teaches a monitor diode (103 in figure 1). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the leads taught by Govan Date et al. to transmit the signals of Dormer's diode because it would help maintain the power level of the laser at the appropriate level.

Govan Date et al. and Dormer and Bull et al. don't teach two leads for each of the components. It would have been obvious as a matter of design choice to use two leads as in the connector taught by Govan Date et al. because it provides a return path for the signals, in other words, greater flexibility.

(2) With respect to claim 2:

Govan Date et al. teaches the TOSA, wherein the multi-layer ceramic feedthrough (20 and 21 in figure 4).

However Govan Date et al. does not teach one layer for transmitting the RF signals, and one layer for transmitting the DC bias signals.

It is obvious as a matter of design choice to have the RF signals separate from the DC bias signals in the assembly taught by Govan Date et al. because the interference would introduce noise into the system in such a way that the RF signal would be shared with the branch carrying the DC signal and the branch carrying the transmission of the RF signal.

(3) With respect to claim 3:

Govan Date et al. teaches the TOSA, wherein the housing includes a bottom and four sides (1 in figure 1); and the multiple layers of ceramic (20 and 21 in figure 4, same as figure 1, page 1, paragraph 0016).

However, Govan Date does not teach the four sides comprised of multiple layers of ceramic.

It is obvious as a matter of design choice to build the four sides out of multiple layers of ceramic in the assembly taught by Govan Date et al. because it would provide more heat dissipation.

(4) With respect to claim 4:

Govan Date et al. teaches the TOSA, wherein the housing includes a bottom and four sides (1 in figure 1);

However, Govan Date et al. does not teach the TOSA, wherein three of the sides are comprised of a low thermal expansion material.

Dormer teaches a heat sinking material called Kovar (page 2, paragraph 0022).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the low thermal expansion material taught by Dormer in three sides of the TOSA as taught by Govan Date et al. because it dissipates the heat radiated by the optical assembly.

(5) With respect to claim 5:

Govan Date et al. teaches all of the subject matter as described above, except for the TOSA, wherein the bottom includes a portion of the thermally conductive material for dissipating heat from within the housing.

Dormer teaches the bottom includes a portion of the thermally conductive material for dissipating heat from within the housing (202 in figure 2).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include a portion of the thermally conductive material as taught by Dormer in the assembly taught by Govan Date et al. because the noise introduced by the heat would be eliminated.

(6) With respect to claim 8:

Govan Date et al. teaches The TOSA, wherein the electrical connector is comprised of a flexible electrical connector (7 in figure 2).

(7) With respect to claim 9:

Govan Date et al. teaches The TOSA, wherein the housing is hermetically sealed (1 in figure 1, the housing has no opening anywhere except for the window where the light goes through, the optical assembly circuit is completely isolated).

(8) With respect to claim 11:

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Govan Date et al. teaches all of the subject matter as described above, except for the TOSA, further comprising temperature control means for controlling the temperature inside the housing.

Dormer teaches the TOSA, further comprising temperature control means for controlling the temperature inside the housing (104 in figure 1, a thermistor).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a thermistor as taught by Dormer in the assembly taught by Govan Date et al. in order to monitor the operating temperature of the laser.

(9) With respect to claim 12:

Govan Date et al. teaches all of the subject matter as described above, except for the TOSA, wherein the temperature control means comprises a section of thermally conductive material forming part of the housing.

Dormer teaches the TOSA, wherein the temperature control means comprises a section of thermally conductive material forming part of the housing (page 2, paragraph 0022, "kovar").

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to make up part of the housing with thermally conductive material as taught by Dormer in the assembly taught by Govan Date et al. because it prevents the housing from completely heating up.

(10) With respect to claim 13:

Govan Date et al. teaches the TOSA, wherein the circuitry is formed in a ceramic substrate extending contiguously from the ceramic feedthrough (30 in figure 4).

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3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Govan Date et al. (20030063872) and Dormer (20020130249) and Bull et al. (5,029,306) as applied to claim 1 above, and further in view of Martyn et al. (EP 1 329 753).

Govan Date et al. and Dormer and Bull et al. teach all of the subject matter as described above except for The TOSA, further comprising a bore mounting flange mounted on the housing, whereby any size of bore may be connected thereto for receiving any size of optical connector mounted on an end of the optical fiber.

Martyn et al. teaches The TOSA, further comprising a bore (see figure 4) mounting flange mounted on the housing (12 in figure 4) whereby any size of bore may be connected thereto for receiving any size of optical connector mounted on an end of the optical fiber (column 3, paragraph 0016, it is clear that from the drawing the flange could be extended to fit any bore).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the extendable flange as taught by Martyn et al. in the assembly of Govan Date et al. because that would make the assembly for flexible and more compatible to different sizes of fiber.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Govan Date et al. (20030063872) and Dormer (20020130249) and Bull et al. (5,029,306) as applied to claim 1 above, and further in view of Sato et al. (20020196820).

Govan Date et al. and Dormer and Bull et al. teach all of the subject matter as described above except for The TOSA, wherein the lens system included a first and a second lens; wherein the first lens is disposed inside the housing adjacent the laser

diode; and wherein the window comprises the second lens disposed outside of the housing for focusing the optical signal from the first lens onto the optical fiber.

However, Sato et al. teaches The TOSA, wherein the lens system included a first and a second lens (2 and 8 in figure 1); wherein the first lens is disposed inside the housing adjacent the laser diode (2 in figure 1, inside 4); and wherein the window comprises the second lens disposed outside of the housing for focusing the optical signal from the first lens onto the optical fiber (8 in figure 1, for focusing the lens onto fiber 6 in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the lens system taught by Sato et al. in the assembly taught by Govan Date et al. because it would provide a better focus of the light emitted by the laser.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Govan Date et al. (20030063872) and Dormer (20020130249) and Bull et al. (5,029,306) as applied to claim 1 above, and further in view of Blonder et al. (4945400).

Govan Date et al. and Dormer and Bull et al. teach all of the subject matter as described above except for The TOSA, wherein the housing is less than 6.0 mm wide.

However, Blonder et al. teaches a subassembly for an optoelectronic device with base and lid measuring about 3X4 mm (column 5, line 38 – 41, which means that the housing of figure 1 would have to be less than mm wide).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to design housing less than 6 mm wide as taught by Blonder et al. in the

assembly taught by Govan Date et al. because it can be realized by relatively simple and inexpensive photolithographic processes, which do not require large volume to render them cost effective (column 2, lines 15 - 18).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guerssy Azemar whose telephone number is (571)270-1076. The examiner can normally be reached on Mon-Fri (every other Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER

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